

THIS CHAPTER IMPLEMENTS STANAGs 2863, 3117, AND 3570**CHAPTER 2
OPERATIONS**

Pathfinders conduct many different missions. Several of these supplement the ground unit's operation.

Section I. PLANNING

To ensure success of the ground mission, pathfinders plan their own missions in detail. The more time they have to plan, the more detailed a plan they can make.

2-1. WARNING ORDER

As soon as he receives word of a pending operation, the senior pathfinder issues a mission alert. He immediately follows with a warning order. He includes just enough information to allow the other pathfinders to start preparing for the operation. This includes—

- Roll call.
- Enemy and friendly situations (in brief).
- Mission.
- Chain of command and task organization.
- Individual uniform and equipment (if not discussed in the SOP).
- Required equipment.
- Work priorities (who does what, when, and where).
- Specific instructions.
- Attached personnel.
- Coordination times.

2-2. INITIAL PREPARATION

On receiving the alert or warning order, pathfinders inspect and, as needed, augment personnel and equipment.

a. Pathfinders prepare equipment in the following order, from the most to the least important:

- (1) Radios.
- (2) Navigation aids (electronic and visual).
- (3) Weapons.
- (4) Essential individual equipment.
- (5) Assembly aids.
- (6) Other items, as needed.

b. The pathfinder element leader (or his representative) and the air mission commander begin coordinating with the supported aviation unit(s), ground unit(s), or both.

c. As the pathfinders receive more information, they reorganize personnel and equipment to better accomplish the mission. If time permits, they rehearse. They use available briefing aids, and they rehearse on terrain that most nearly resembles the AO.

d. To succeed, an operation must have security. So, each person receives only the information he must have to complete each phase of the operation. For example, the commander isolates any soldiers who know the details of the operation. The situation dictates the extent of security requirements.

2-3. COORDINATION

Ground and aviation commanders work together to coordinate and plan the details of operations for which they require pathfinder assistance.

a. In any type of operation (combat assault, reinforcement, artillery displacement, resupply, or evacuation), the pathfinders might have to recommend—

- Exact locations for DZs or LZs.
- A time schedule.
- Landing formations.
- Employment techniques.

b. Before selecting a DZ or LZ, the supported unit commander considers METT-T factors. He also considers what the pathfinder and aviation commanders (or their representatives) suggest.

c. While preparing for an operation, air liaison officers (ALOs) and ground unit commanders (GUCs) coordinate with pathfinders to make an air movement table. Table 2-1 shows who coordinates what.

SEQUENCE	ALO	GUC	COORDINATE WITH PATHFINDERS
1.	X	X	Operational location (coordinates).
2.	X		Locations of the primary and alternate communications checkpoints (coordinates).
3.	X		Location of release point.
			• Coordinates.
			• Whether manned or unmanned.
4.	X	X	Time the site can begin operating.
5.	X		Aircraft information.
			• Formation.
			• Time interval.
			• Time of flight.
			• Drop speed.
			• Drop altitude.
6.	X		Pathfinder transportation and time available for briefing.
7.	X		Pathfinder transportation station time.
8.	X	X	Routes into the objective area.

Table 2-1. ALO and GUC coordination of air movement table.

SEQUENCE	ALO	GUC	COORDINATE WITH PATHFINDERS
9.	X	X	Call signs.
			• Aircraft.
			• Pathfinders.
			• Supported units.
			• Other friendly units.
10.	X	X	Primary and alternate frequencies.
			• Aircraft.
			• Pathfinders.
			• Supported units.
			• Other friendly units.
			• Homing beacon.
11.	X	X	Fire support.
			• Artillery.
			• Tactical air support.
12.	X		Weather forecast.
			• Ceiling.
			• Visibility.
			• Temperatures (high and low).
13.	X	X	Logistical support, including locations of-
			• Medical aid station.
			• Prisoner collection point.
			• Fuel.
			• Ammunition.
			• Rations.
14.	X	X	Alternate plans (ALO and GUC).
			• Evacuation plan.
			• Escape and evasion.
15.	X	X	Friendly unit locations.
16.	X	X	Authority to implement mission change.
17.		X	Support personnel required.
18.	X		No-land or no-drop signals (day and night).
19.			Markings for obstacles (only on request of flight commander).
20.	X		Marking of objective site for identification from the air.
21.	X	X	Time allowed for approval.

Table 2-1. ALO and GUC coordination of air movement table (continued).

d. The pathfinder needs this information because he helps coordinate planning. He uses the information to make final plans for the pathfinder phase of the operation. To make sure that he can safely and efficiently control all aircraft in and around the DZs or LZs, he must know all about the operation's air movement phase. Aviation and ground commanders inform pathfinders of all changes to plans and landing sites, and about any emergencies. The pathfinder coordinates all activities with every agency or unit involved, then gives the information to all of the pathfinders involved in the operation.

e. When the pathfinder reaches the objective site, he may find it unsuitable. He evaluates the coordinated landing formation, heading, drop altitude, and the ground site itself. Then, he coordinates with the ground commander, aviation commander(s), or both to see whether any of the original requirements have changed. Depending on the METT-T situation, the commander(s) determines what, if any changes to make in order to accomplish the mission. If for any reason he cannot contact the GUC or aviation commander, the pathfinder can also coordinate for authority to change requirements.

f. The pathfinder limits augmentation to that appropriate to the amount and type of transport. The reinforced pathfinder team remains under the command of the pathfinder leader, who is responsible for team functions. Based on the coordinated plans for the operation, the pathfinder requests augmentation in personnel and equipment. He considers—

- (1) Mission.
- (2) Use of personnel and equipment for security.
- (3) Requirement to help assemble the supported units' personnel, supplies, and equipment.
- (4) Need for assistance in removing obstacles.
- (5) NBC survey or monitoring requirements.
- (6) Assistance required to transport and operate navigation aids under pathfinder direction.

2-4. LINKUP WITH SUPPORTED UNIT

Pathfinders join the supported unit early enough to allow final coordination between pathfinder, aviation, and lifted ground unit representatives. Pathfinders designated to accompany and provide continuous support to a ground unit can enter a DZ or LZ ahead of the assault echelon. After the initial phase of the air movement, they link up with the supported unit.

2-5. FINAL PREPARATIONS

The pathfinder leader issues his OPORD. If he issues it before linking up with the supported unit, he issues any changes as a FRAGO. The order describes any member's duties not covered in the unit SOP. Team members must have a chance to study maps, aerial photos, and terrain models of the area. The order provides details about the location and operation of proposed air delivery facilities, flight routes, flight formations, time schedules, RPs, and CCPs.

a. The pathfinder conducts a final, thorough check of equipment. The commander decides exactly how to transport the equipment into the objective area. Then the pathfinders prepare all of the equipment for rapid displacement.

b. Just before departure, at a final weather and operational briefing, the pathfinders and supported units conduct final coordination.

Section II. ORGANIZATION FOR COMBAT

The pathfinder mission itself determines the specific requirements of the mission. In most operations, three to six soldiers comprise the average-sized pathfinder element supporting a DZ or an LZ or continuously supporting an infantry battalion. Seldom does a pathfinder section deploy as a unit from a single location. The pathfinder leader plans for his elements to operate widely separated and disconnected.

2-6. INSERTION

Pathfinders can insert by a variety of air, sea, or land transportation modes.

a. **Helicopter Delivery.** Helicopters can deliver more personnel and equipment in a better state of operational readiness than any other means. Even in marginal weather, helicopters allow more precise, flexible deliveries than parachutes do. Some terrain does not allow helicopter landings. In these cases, trained soldiers rappel from helicopters, while the helicopters hover over the unsuitable landing areas. Personnel can insert or withdraw by ladders suspended from hovering helicopters. Helicopters can also—

- Furnish a means of aerial radiological monitoring.
- Rapidly shift or evacuate pathfinders.
- Carry nonparachutists to support pathfinders.
- Deliver when rain or low ceilings prohibit parachuting.

b. **Parachute Delivery.** Parachute delivery by fixed-wing aircraft normally affords greater range and speed of movement than landing by helicopter. In a short-distance operation, helicopters can serve as the jump aircraft.

(1) Depending on wind conditions, pathfinders should compute their desired parachute RPs before arriving over the DZ. For accuracy and security, the pathfinders jump at the lowest practical altitude. Aircraft SOPs prescribe jump altitudes and personnel procedures. Such procedures vary IAW peacetime and wartime restrictions.

(2) As highly trained parachutists, pathfinders can insert into unimproved and marginal DZs. They know how to control the canopy of a maneuverable parachute, and they know how to make emergency landings. They also know how to parachute into rough-terrain DZs. These skills give them some flexibility in planning parachute delivery.

CAUTION

During preparation for the operation, pathfinders carefully arrange and pad all essential items of operational equipment into appropriate containers. Carrying this equipment with them when they insert ensures they have it as soon as they land.

(3) The best time to insert by parachute is during nonilluminated, nonsupported night operations when the operation emphasizes secrecy.

(4) Because fixed-wing aircraft need large, secure, obstacle-free landing areas, they seldom deliver pathfinders.

c. **Water and Land Delivery.** Delivering pathfinders by watercraft offers security only up to the point of debarkation from the craft. The pathfinders still must move from

the landing point (debarkation) to their final destination. To do this, they infiltrate by land.

2-7. OVERLAND MOVEMENT

Because it limits small elements to short movements, infiltrating by land is the worst way to insert pathfinders.

a. A well-organized, stable, close-knit enemy defense in depth can prohibit land infiltration. When time allows, the pathfinders can increase infiltration security by combining overland infiltration with parachute or airlanded infiltration.

b. Pathfinders infiltrate overland when the following conditions exist:

- Limited visibility over difficult terrain.
- Overextended enemy lines.
- Fluid combat zone.
- Unsecured portions of enemy boundaries.

2-8. STAY-BEHIND OPERATION

In a stay-behind operation, pathfinder elements remain in the operational area while another friendly force withdraws from the area. The commander can use stay-behind operations for the following reasons:

a. To lure enemy forces into a vulnerable position.

b. To hold an area for reoccupation. If the commander plans to reoccupy a friendly area he knows the enemy could overrun, he leaves a stay-behind force to hold it. If he leaves the stay-behind force for this reason, then he must also plan an air assault to retake the area, if needed.

Section III. CONDUCT OF OPERATIONS

Pathfinders provide air traffic advisories and navigational aid for airplanes and helicopters. They also perform limited physical improvement and NBC monitoring and surveying within DZs or LZs. Pathfinder availability, the tactical plan, the complexity of the operation, the terrain, and the air assault proficiency of the supported ground unit dictates pathfinder support. However, every air assault operation requires positive aircraft control. During an air-assault operation, pathfinders cross load before entering an LZ with the initial assault elements.

2-9. DAYLIGHT ASSAULT

In daylight operations, pathfinders insert into an LZ before the initial assault echelon only if the LZ requires extensive improvement, or if planners expect unusual control problems. Either way, the pathfinders start setting up at once so they can provide air traffic control and other aid to all subsequent lifts of troops, supplies, and equipment. They may have a few minutes or several hours to do this before the other elements arrive. The tactical plan spells out exactly when and how the pathfinders will enter the area, whether they will go in alone or not, and what time the next element will arrive.

2-10. NIGHT ASSAULT

Security and operational requirements determine the method of delivering pathfinders at night. Pathfinders can move cross-country on foot, airdrop onto or near objective areas, airland in total blackout, or airland with minimum natural illumination. When they do

insert this way, they sometimes arrive before the main body does. As soon as they arrive, the pathfinders reconnoiter the LZ, install visual and electronic aids, and establish air traffic control. Soldiers from the supported ground unit sometimes accompany the pathfinders. These extra soldiers provide security and help clear obstacles. The on-site pathfinder element remains concealed and observes the objective. Pathfinders analyze the planned landing formation, heading, and assembly area. To avoid compromising the mission, no one on the DZ or LZ moves until an incoming aircraft reaches the CCP.

2-11. EXTRACTION

As the ground force at the LZ shrinks, vulnerability to attack increases. Therefore, the commander has pathfinders speed up the air assault extraction operations.

a. Planned artillery fires and air strikes as well as the need to maintain ground security to the last minute require that ground controllers control supporting aircraft throughout the extraction. This means they make sure aircraft land at specific points within the extraction site where ground security can cover them. This speeds the operation and helps ensure the safe withdrawal of personnel, equipment, and aircraft from the area.

b. Unless they land with the lifted unit, pathfinders must arrive at the extraction site in time to reconnoiter thoroughly and coordinate with the lifted unit.

c. During the planning stage, the pathfinder team leader designates near and far rally points for use in case the DZ or LZ becomes unusable. Pathfinders may have to fight their way to these rally points and reorganize. To increase the chance of survival, evasion, resistance, and escape, the team leader designates far rally points several kilometers from the DZ or LZ.

2-12. STAGING AREAS

In staging areas, in the absence of ATC units, pathfinders can provide air traffic advisories. They may also act as liaison between the aviation and ground units and help the ground unit commander prepare and position troops, supplies, and equipment for air movement. When pathfinders must set up a temporary staging area to support an operation of short duration, they move into the area before the operation begins. This gives them enough time to reconnoiter, mark the site, coordinate, and set up positive ATC. Safe, efficient, and rapid movement of helicopters or airplanes requires positive ATC in staging areas. The need for positive ATC increases when the weather deteriorates, when the number of aircraft increases, or when changes in the situation or plans require it.

2-13. ARTILLERY DISPLACEMENT

Pathfinders should help safely and rapidly displace artillery, day or night. Coordinating with ground and aviation unit commanders and understanding their SOPs ensure pathfinders accurately and efficiently deliver equipment, personnel, and ammunition.

2-14. SUPPORT OF GROUND OPERATIONS

During ground operations that require sustained Army aviation support, pathfinders might continuously aid and control aircraft. The commander can attach pathfinders he has already attached to infantry battalions to companies as well. The pathfinders provide support consistent with the availability of personnel and equipment. Continuous support

improves operational efficiency and aviation safety during all types of air assault operations. However, aviation units with limited pathfinder resources cannot provide continuous support. In such cases, commanders usually employ pathfinders on a short-term, priority basis wherever the pathfinders can help accomplish major unit missions. In the absence of pathfinders, selected personnel in the ground units must receive enough training and preparation to allow them to provide minimum aid to supporting aircraft.

2-15. SUPPORT OF AIR FORCE

By joint US Army and USAF agreement, in the absence of USAF STTs, Army pathfinders can provide day or night control for USAF aircraft on airfields, DZs, and LZs. However, the USAF might need to provide pathfinders with UHF and VHF communications equipment compatible with USAF aircraft.

2-16. MIXED OPERATIONS

Some situations could require the simultaneous control of mixed air traffic at the same location such as resupply parachute drops into forward helicopter LZs. Fixed-wing airfields can expect helicopter traffic. Mixed air traffic often presents difficult control problems, so controllers must apply strict control measures. To ensure control, they designate, coordinate, and clearly identify landing, parking, loading, unloading, refueling, and rearming areas.

2-17. RADIO COMMUNICATIONS

For success, a pathfinder requires the essential element of communication by GTA voice radio. The pathfinders place this into operation first at a DZ or LZ, and they take it out of operation last.

a. Pathfinders must thoroughly understand radio procedures. This includes the phraseology unique to ATC (Chapter 3). They must send clear, concise, applicable, accurate, and correctly timed communications. To achieve speed and clarity of transmission, pathfinders and aviators practice radio discipline. They transmit only necessary messages. Also, except in emergencies, they use pathfinder ATC frequencies only for ATC (Figure 2-1).

b. Because they exchange a lot of vital information, aircraft crews normally record the important parts of GTA messages. This helps them to make sure they understand and can follow instructions.

c. Pathfinders use electronic homing beacons, visual aids, and arm-and-hand signals to complement voice communications. Pilots and transported troops must know the purpose and meaning of the aids used and the techniques for using them (STANAG 3570). (FM 21-60 discusses arm-and-hand signals and visual aids.)

d. When possible, to keep informed about changing situations that could influence their operations, pathfinders monitor supported unit command radio nets.

e. Pathfinders set up positive communications between pathfinder ATC facilities and collocated fire support elements. This ensures aircraft receive timely and accurate information about friendly fires.

f. Pathfinder operations require the constant use of radios. This gives the enemy force many chances to intercept, analyze, and exploit friendly transmissions. They try to gain intelligence and conduct electronic jamming and deception. Defeating enemy jamming or imitative deception methods falls mostly to the radio operator. He must know

how to recognize and report this deliberate interference. To plan and execute a tactical mission, he must know—

- How to defend against and beat ECM using ECCM.
- How to secure transmissions.
- How to communicate using other means.

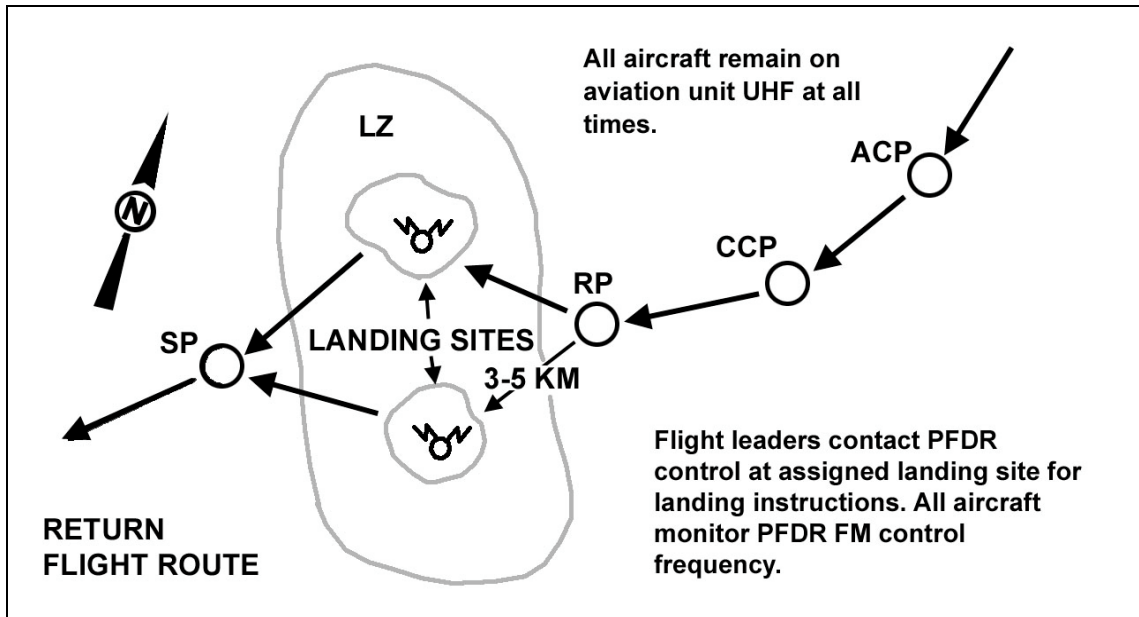


Figure 2-1. En route communication procedures with pathfinders in an LZ.

2-18. TERMINAL GUIDANCE BY SUPPORTED UNITS

Terminal guidance refers to information and minimal guidance given to pilots by anyone in a ground unit other than a qualified pathfinder. Selected personnel normally furnish terminal guidance within the supported unit. To do so, they use both organic and improvised equipment.

- a. When pathfinders accompany ground units, aviation unit SOP may direct that terminal guidance personnel augment pathfinder elements.
- b. Terminal guidance personnel should know—
 - (1) The supporting aviation unit SOP.
 - (2) How to operate electronic and visual navigation aids to help aircraft find DZs or LZs.
 - (3) To provide essential information through GTA radio to guide and control Army aircraft.
 - (4) To reconnoiter and recommend suitable DZs or LZs.
 - (5) To determine, recommend, or perform ground-clearing pioneer work to prepare DZs or LZs.

Section IV. HIGH-THREAT ENVIRONMENT

The threat comes in many forms. To ensure mission success, aviation and ground commanders must consider all possibilities. They must consider a threat anything that could disrupt or delay the mission, or that could otherwise cause the mission to fail.

2-19. CONTROL AND NAVIGATION

Pathfinders have limited voice control of aircraft. Thus, the ground unit commander and the air mission commander must coordinate closely. Navigation presents special problems-aviators must fly low to avoid detection. In a high-threat environment, critical factors include time, distance, routes, and tactical instruments.

a. For example, two pathfinders with beacons could emplace along a route in advance of the initial flight. They provide pilots with air control points. If the pilot needs the beacon turned on due to navigational error, he can transmit a prearranged signal or code word.

b. Pathfinders might discover a threat, such as an antiaircraft weapon, along the primary route. If so, they can alert pilots by prearranged code word or signal to change to an alternate route.

2-20. TACTICAL INSTRUMENT FLIGHTS

Flying under instrument meteorological conditions poses special problems in a high-threat environment. This threat overrides the controlled instrument flight rules in the aviation-series manuals. It forces aircraft to fly at altitudes well below the minimums for normal instrument flight.

a. Weather variances can create a tactical emergency. If so, the commander might have to use aviation assets under instrument conditions and well below the altitudes specified by standard instrument flight rules. The commander will only send aircraft on a mission in a high-threat environment under these conditions when the situation meets the following criteria:

(1) The aviation and ground commanders cannot postpone the mission in order to wait for better weather.

(2) The pathfinders must conduct the mission in a high-threat environment.

(3) Low visibility en route precludes nap-of-the-earth flight.

b. Aviation and ground commanders employ tactical instrument flight whenever weather or time and distance considerations prevent mission completion in other flight modes. Therefore, they must often use tactical instrument flight during round-the-clock operations on the high-threat battlefield. Air crews and pathfinders must rehearse tactical instrument flight until they achieve proficiency.

c. Pilots fly in one of two altitude modes:

(1) **Mode 1.** When the air defense threat keeps flight altitudes below those established by AR 95-1 (for standard instrument flight), then pilots can fly at least 1,000 feet over mountainous terrain and 500 feet over flat terrain.

(2) **Mode 2.** When the threat limits flight altitudes to the least possible clearances, pilots can fly as low as 50 to 500 feet above the ground, regardless of terrain.

2-21. AIR ROUTES

Aircraft traffic management personnel (and pathfinders) can expect to move their equipment as often as every four hours, depending on the threat. Terrain, weather, and,

most importantly, whether or not the enemy could intercept friendly aircraft from that location, determine when to move.

a. **Threat and Terrain.** In many instances, the threat and terrain prohibit a straight-line flight between the takeoff (liftoff) point and the destination (Figure 2-2). This applies to both Modes 1 and 2.

b. **Flight Monitoring and LZ Approach.** Enemy presence keeps the pathfinders from using nondirectional beacons. However, for pilots to approach and land on the LZ visually, they need good visibility. Using radio homing signals for directional guidance presents a dubious option. Whether or not aircraft traffic management personnel decide to use this electronic device, they should try to orient its signal away from the FEBA. This reduces the chance of detection.

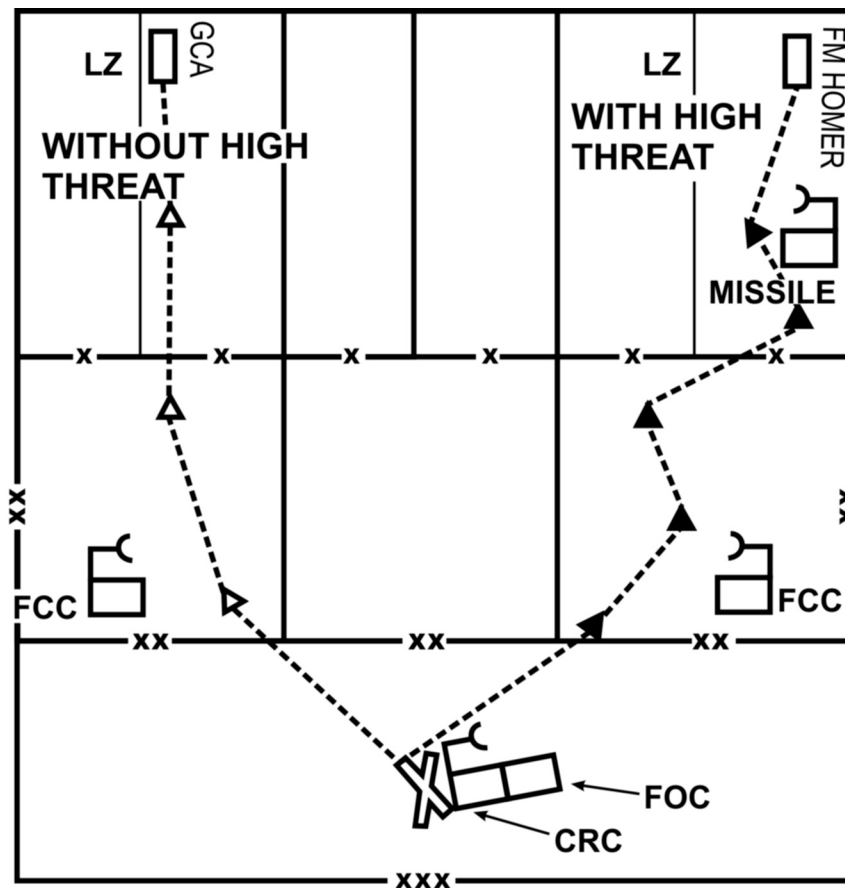


Figure 2-2. Comparison of air routes with and without a high-threat environment.